

# Stroke Treatment and Recovery

## Patient, Family and Caregiver Guide

Ann Arbor • Chelsea • Livingston • Livonia • Oakland



Please bring this booklet to follow-up appointments.





## Table of Contents

### Road to Recovery

- Questions for the Stroke Survivor ..... 3

### Stroke Pathology

- What is a Stroke? ..... 4
- Hemorrhagic Stroke..... 4
- Ischemic Stroke..... 4
- What is a Transient Ischemic Attack (TIA)? ..... 5
- Stroke Warning Signs ..... 5

### Risk Factors

- You Can Modify By Changing Your Lifestyle..... 6
- Shopping for Healthy Choices ..... 7
- For Stroke and TIA ..... 7
- Selecting Healthy Food Choices ..... 8
- You Can Modify With the Help of Your Doctor..... 9-10
- You Cannot Modify ..... 11

### Diagnostic Tests

- Cerebral Angiography ..... 12
- CT Scan (Computed Tomography)..... 12
- Doppler Studies ..... 12
- Duplex Studies..... 12
- Electrocardiogram (ECG/EKG)..... 12
- Transesophageal Echocardiogram (TEE) ..... 12
- Continuous ECG/EKG Monitoring..... 13
- Magnetic Resonance Angiography (MRA)..... 13
- Magnetic Resonance Imaging (MRI) ..... 13
- Videofluoroscopy Swallowing Study (VFSS)..... 13

### Medications and Treatments

- Antithrombotics, Antiplatelet Agents, Anticoagulants and Statins ..... 14-15
- Taking Other Drug Medications & Drug Precautions..... 16-17
- Stroke Treatments ..... 18

### Stroke Rehabilitation

- Rehabilitation Program..... 19
- Levels of Assistance ..... 20
- Periodic Assistance..... 20
- Daily Assistance..... 20
- Constant Supervision ..... 20
- Supervised Living..... 20

### Memory Changes

- Memory Disorders and Processes ..... 21
- Caregiver Tips for Memory ..... 21
- Diagnosis and Treatment of Memory Disorders ..... 22

### Problems in Reasoning, Problem Solving & Judgement

- Diagnosis and Treatment ..... 23
- Behaviors ..... 23
- Caregiver Tips for Reasoning ..... 23
- Problems Solving ..... 2

### Emotional Changes

- Depression ..... 25
- Caregiver Tips for Depression ..... 26
- Depression Screening Questionnaire ..... 27

### Physical Changes

- Apraxia ..... 28
- Weakness and Paralysis..... 28
- DVT / Regaining Movement & Function ..... 29
- Spasticity ..... 30-31
- Caregiving Tips for Spasticity ..... 31
- Difficulty Swallowing ..... 32-33

### Speech & Language Changes

- Aphasia ..... 34
- Caregiving Tips for Aphasia..... 35
- Dysarthria ..... 36
- Caregiving Tips for Dysarthria..... 36

### Visual, Perceptual Problems & Neglect

- Vision and Neglect ..... 37
- Diagnosis and Treatment..... 37
- Caregiver Tips for Vision and Neglect ..... 38

### Other Changes

- Driving..... 38
- Returning to Sexual Relations ..... 38

### Caregivers

- Don't Be Afraid to Ask for Help ..... 39
- Other Care Options..... 40
- Caregiving Tips ..... 40

### Stroke Survivor Safety

- Household Safety and Falls..... 41
- Fires and Burns..... 42
- Food and Poisoning ..... 42
- Handling Emergency Situations and Crime ..... 42

### Transitions

- From Hospital to Home ..... 43
- For the Caregiver..... 44

### Resources

- Glossary of Terms ..... 45
- Support Groups and Classes ..... 46
- Questions or Concerns ..... 47

## Welcome to Trinity Health Michigan

Trinity Health offers the latest medical knowledge and compassionate care. We've earned a reputation as a top health care system – and not just from the hundreds of thousands of patients we've served. Leading national and regional magazines rank us as a "Top Hospital" with "Top Doctors" in specialties that include cardiovascular, orthopedics, oncology, neurosciences, gastroenterology and urology.

We all have a role in making health care safe – doctors, nurses and the entire health care team. You, as the patient, can also play a vital role in making your care safe by becoming an active, involved and informed member of your health care team. If you have questions about patient safety, or patient care speak to your doctors, therapists or nurses.

**Our goal is to keep you healthy and on the road to recovery. This educational booklet was created to help you learn more about the treatment and recovery after a stroke.**

### Help us better understand your concerns before discharge

**Do you have someone that can help you after you are discharged from the hospital?** (List Names)

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**What are your goals to accomplish while you are in the hospital?**

Short-Term Goals \_\_\_\_\_

Long-Term Goals \_\_\_\_\_

**Do you know what kind of stroke you had?**

If so, what kind \_\_\_\_\_

**Do you know what you can do to help prevent another stroke from occurring?**

Read pages 6 - 10 for risk factors you can modify by lifestyle changes.

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**What kind of help do you think you need after leaving the hospital?** (Explain)

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**What are your concerns after you leave the hospital?** Check all that apply:

- Being able to afford new medications
- Physical difficulty getting around in my house and community
- Concerned for my job
- Unable to drive/not sure how I will be able to get around
- Difficult time eating a healthy diet
- Worried about not having enough help at home
- Difficult time trying to quit smoking
- Finances

**Does your family or caregiver have any additional concerns?**

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**If you have any new stroke symptoms or suspect a stroke call 911 immediately.  
Do not attempt to drive yourself to the emergency room.**

## What is a Stroke?

A stroke, also called a 'brain attack,' is a medical emergency. A stroke harms the brain much in the same way that a heart attack harms the heart. When the brain does not get the oxygen it needs, it may result in permanent brain injury.

**There are two major types of strokes: Hemorrhagic and Ischemic**

### Hemorrhagic (hem-o-raj-ick) Stroke

Hemorrhagic stroke occurs when a blood vessel in the brain breaks or ruptures. The broken blood vessel can create pressure and cause brain injury.

Some hemorrhagic strokes happen as a result of high blood pressure or smoking. These are often called intracranial hemorrhages (ICH). Still others may be a result of a weakening in the wall of the artery that ruptures. These often cause subarachnoid hemorrhages (SAH). The available treatments depend on diagnosing the cause of bleeding.

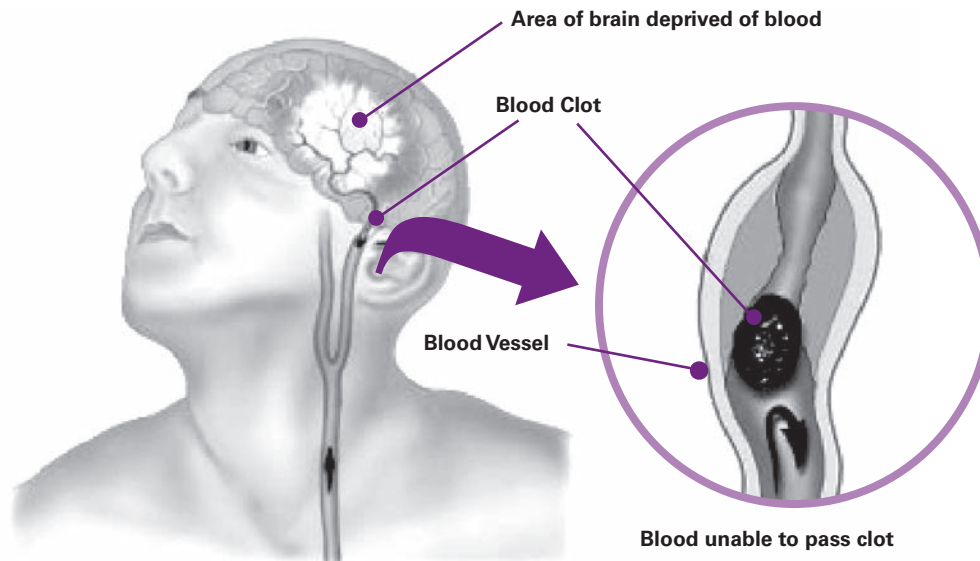
### Ischemic (is-KEM-ick) Stroke

An ischemic stroke occurs when blood clots or other particles block the blood vessels in the brain. Ischemic strokes can be either embolic or thrombotic in origin.

A thrombotic clot is formed when athero-sclerosis or fatty deposit/plaque build up in the arteries carrying blood to the brain. Clots can form and grow big enough to block the blood vessel. When a clot forms in this manner, it is called a thrombus.

An embolic clot is from another part of the body (heart or large blood vessel) that breaks loose, traveling through the bloodstream until it blocks a vessel. A clot that travels in the body is called an embolus.

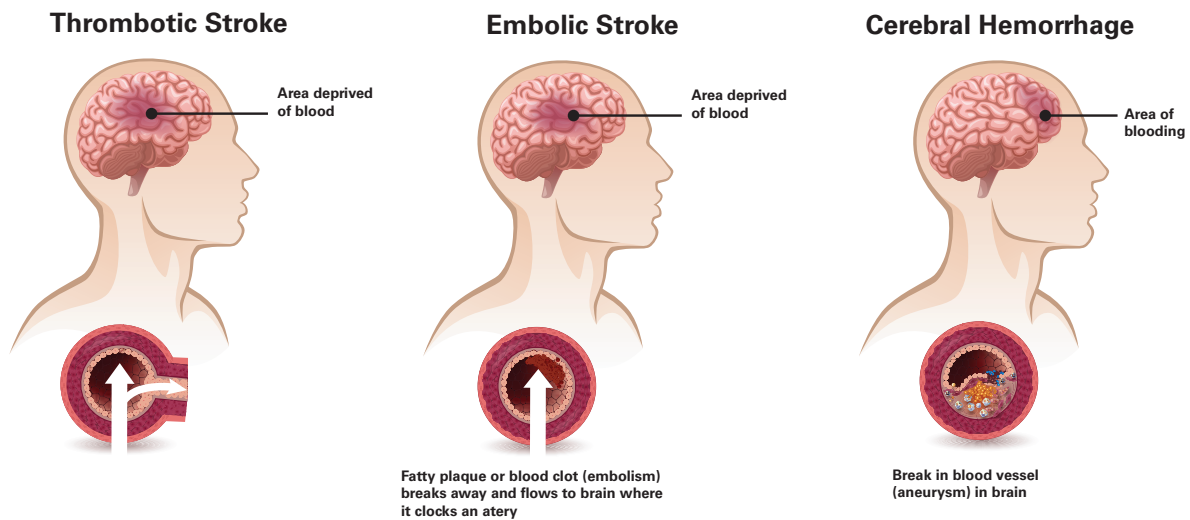
**Quickly diagnosing the cause and location of the blood clot helps doctors to determine if there is a treatment available to help.**



## What is a Transient Ischemic Attack (TIA)?

TIA's are often called a 'mini-stroke.' They can occur days, weeks or months before a major stroke. TIA's occur when there is a temporary blocking of an artery and part of the brain does not get the blood it needs. The warning signs/symptoms are the same as a stroke which occur rapidly and last a relatively short time. Most TIA symptoms last only a few minutes, but can last for several hours. People who have a TIA are more likely to have a future stroke compared to those people who have not had a TIA. Not everyone that has a TIA will have a stroke.

TIA's are a significant risk factor that you should not ignore. Know the warning signs of a stroke or 'brain attack.' Unlike heart attacks, strokes can be painless, but are still an emergency.



## Risk Factors

### Risk Factors You Can Modify

#### Stop Smoking and Using Nicotine Products

Smoking cigarettes or other nicotine products narrows and damages the walls of blood vessels, making clots more likely to form.

**DID YOU KNOW... your risk of heart disease and stroke starts to drop if you simply stop smoking? The risk is cut in HALF after one year without smoking and if you continue to stop smoking the risk keeps dropping until eventually it is as low as a non-smoker's risk.**

Quitting smoking is an excellent way to help reduce your stroke risk and has benefits towards prevention of other diseases too. If you want to quit smoking, and don't know where to start, call the Michigan Tobacco Quit Line: **800-480-7848** or try Quit Right App: **quitrightapp.com**.

#### Physical Activity and Obesity

Exercise and activity are important ways to help reduce your stroke risk. Obesity is also linked with high blood pressure, diabetes and heart disease — all of which increase your stroke risk.

#### Excessive Alcohol Intake

Drinking alcohol in excess can raise your blood pressure and adds calories to your diet.

#### Illegal Drug Use

Intravenous drug abuse carries a high risk of stroke. Cocaine use has also been linked to stroke and can be fatal even in first time users.

#### Fad Diets and Other Quick Fixes

Fad diets and other quick fixes may make it fairly easy to lose weight quickly for a short time, but rarely help long-term. Consider a long-term and healthier eating plan. Seek a program with a support system that focuses on behavior modification and reduction of calories. Ask yourself what triggers your overeating? Discover the answers to poor eating choices by asking: "when do I eat," "why am I eating" (is it hunger or boredom) and "with whom do I eat with?"

Before starting a vigorous exercise program, you should contact your doctor. This is especially important if you're middle-aged or older, have heart disease, have had a stroke or another medical problem or have been inactive a long time.

Many overweight and obese people have difficulty losing weight. Even modest weight loss (5 to 10 percent of body weight) can help reduce high blood pressure and cholesterol. It can also help control diabetes in some people. If you can't lose weight on your own, talk to a doctor, or a registered dietitian (RD). If you're overweight, losing 10 to 20 pounds can help lower your stroke and heart disease risk.

### Eating Healthy

It is never too late to embrace healthy eating habits. Getting started can be as simple as adding fresh fruits, vegetables and whole grains as well as reducing the amount of fat, salt and sugar in your diet. It is not about giving up everything you enjoy, but about balance, variety and moderation. Making changes does not have to be difficult if done in small steps.

### Shopping for Healthy Choices

- Choose foods without added ingredients (salt, fat or sugar).
- Select fresh, fruits and vegetables.
- Pick whole grains.
- Learn how to read labels and know your goals for fat, sodium and calories.
- When you buy frozen or canned produce, read the labels.
- Not everything that is advertised as healthy is really good for you!

### Risk Factors for Stroke and TIA

Some cannot be controlled, such as your age, but some can be modified, treated and controlled, such as high blood pressure. It is very important that you are aware and take steps to reduce your stroke risks.

#### What can you do to reduce your stroke risk?

- Don't smoke or use nicotine products.
- Treat your diabetes.
- Eat a healthy diet.
- Get regular exercise.
- Maintain a healthy weight.
- Control high blood pressure.
- Get regular medical check ups.





### Caregiver Tips

#### Helping Stroke Survivors with Lost Appetites

- Share meals at regular meal times.
- Set a leisurely pace for the meal.
- Serve foods that the survivor wants.
- Encourage healthy snacks or small meals throughout the day.
- Reduce distractions during meals.
- Watch for any problems with chewing or swallowing.

## Selecting Healthy Food Choices

- First, talk to your doctor about what a healthy weight is for you.
- If you need to lose weight, limit high-fat foods and refined carbohydrates.
- Watch portion sizes.

### Breads, Cereals or Grains

- Choose breads and whole grain cereals. Whole grains should be listed as the first ingredient on the label.
- Select cereals with at least 5 grams of fiber.
- Limit cereals with added sugar.
- Watch the sodium content.

### Milk and Dairy

- Choose non-fat or low-fat dairy products.
- Choose cheeses low in saturated fat and sodium.

### Protein

- Pick protein from poultry, fish, beef, pork, dried beans, soy products and vegetable proteins.
- Chicken: choose white meat without the skin.
- Beef and veal: pick cuts without much marbling (fat) like round steak, tenderloin and sirloin.
- Pork and lamb: lean center cuts.
- Fish: fresh or frozen without added sodium.
- Add vegetarian entrees: like beans, veggie burgers, tofu.
- Convenience foods: can be high in sodium (canned soups, pasta sauces, side dishes, pre-packed and frozen meals).
- Choose products low in saturated fat and sodium and high in fiber.
- Read labels and choose carefully.
- Select healthier and trans-fat free snacks: fresh fruit, low-fat yogurt, nuts, seeds and pretzels without added sodium.



## Risk Factors You Can Modify With the Help of Your Doctor

### High Blood Pressure (Hypertension)

The number one risk factor for stroke is hypertension and it's controllable. Blood pressure results from two forces. One is created by the heart as it pumps blood into the arteries and through the circulatory system. The other is the force of the arteries as they resist the blood flow. Normal blood pressure moves blood smoothly through your body. High blood pressure often has no symptoms. High blood pressure can damage the blood vessels in your body, including the brain, and the heart has to work harder to pump blood.

Hypertension is treatable. High blood pressure in an adult is typically defined as a systolic pressure of 120 mm Hg or higher and/or a diastolic pressure of 80 mm Hg or higher for an extended time.

### Tips to Help Control your Blood Pressure

- Limit the sodium you intake from food and drink – less than 1500 mg a day or less is recommended. Some may need even less. Ask your doctor or dietician for guidance on the amount.
- Choose foods carefully when you eat away from home. Restaurant food is often high in sodium and the portions are often large. Ask about low sodium choices.
- Processed foods, canned foods and cured meats are high in sodium.
- Eat plenty of fresh fruits and vegetables.
- Do not use the salt shaker. Experiment with herbs and spices to add flavor without sodium.
- Choose low-fat or fat free dairy products.
- Choose unsaturated fats (canola and olive oil) and limit using saturated fat and trans fats.
  - Saturated fats are found in foods from animals (meats, whole milk dairy, butter and cream) and tropical oils (coconut and palm).
  - Trans fat is found in all foods made with partially hydrogenated oils (fried foods, crackers, chips and foods made with shortening or stick margarine).
- Know your blood pressure and have regular checkups.
- Don't hesitate to seek nutritional advice.

### Atrial Fibrillation

If you have atrial fibrillation, the upper chambers of the heart pump quickly and unevenly (quivering or fibrillating) making it hard for the heart to pump all of the blood out of the chambers. This fibrillating can form clots because of the turbulence in the atria or top chambers of the heart. Controlling the rate doesn't prevent the risk. Survivors may need blood thinning medications to prevent blood clots from forming. These clots can travel from the heart to the brain and block an artery, leading to a stroke.

### Carotid Artery Disease

Carotid artery disease is caused by a buildup of plaques in arteries that deliver blood to your brain. These arteries can narrow because of plaque and may become blocked which may result in a TIA or stroke.

### Diabetes

Diabetes is a disease in which the body doesn't make or respond properly to the hormone insulin. The body needs insulin to convert sugar, starches and other foods into energy. Even with treatment, diabetes still increases a person's risk for stroke. Diabetes makes the body less able to use sugar and fats. Left untreated it will damage the blood vessels throughout the body, including those leading to the brain.

### Elevated Cholesterol Levels

Cholesterol is a fatty substance that your body needs to make cells. If you have too much of it, often gained from the food you eat, it can stick to the walls of your blood vessels. This buildup is called plaque. Over time plaque can partly or completely block a blood vessel. When this happens you have a disease called atherosclerosis.

High cholesterol has no symptoms and many people have it without knowing it. It's important to find out what your cholesterol levels. If you have high blood cholesterol, eating a healthy diet, maintaining a healthy weight and getting regular physical activity are very important to lower your risk. If you need medicine to reduce your blood cholesterol, a healthy diet will also help lower your cholesterol and improve your overall cardiovascular health.

### Tips to Control Blood Cholesterol Levels

- Choose whole grains and high fiber foods.
- Pick fresh fruits and vegetables.
- Add soluble fiber (oatmeal, dried beans and peas). As you add more fiber to your eating plan, drink more water to help your body process the fiber better and lead to less gastrointestinal discomfort (gas or constipation).
- Eat cold-water, fatty fish twice a week (salmon, tuna, mackeral).
- Choose fresh or frozen fish. Canned fish can be high in sodium.
- Add ground flaxseed or flaxseed oil to your food (such as oatmeal).
- Include unsalted nuts in your diet.



## Risk Factors You Cannot Modify

### Heredity and Race

- Non-Whites, especially African Americans and Hispanics, have a higher risk for death and disability from a stroke.
- If you are an African American, a Mexican American, an American Indian, or a Native Hawaiian, you are at higher risk for heart disease and stroke.

**These ethnic groups generally have a higher incidence of high blood pressure, diabetes and obesity.**

**If you are in one of these high-risk groups and have other risk factors, work with your doctor to decrease your risks wherever possible.**



### Age

Anyone can have a stroke, however, the older you are the greater your risk.

### Gender

Men have a greater risk for stroke than women. Although men have a higher risk of strokes than women, more women die because of stroke.

Women smokers who also use oral contraceptives (birth control pills) have a higher risk for heart attack and stroke than non-smokers who use birth control pills.

As women age, their risk of heart disease and stroke begins to rise and keeps rising. Recent studies have found that estrogen replacement therapy may increase the risk of stroke in certain groups of people. If menopause is caused by surgery to remove the uterus and ovaries, the risk rises more sharply. If menopause occurs naturally, the risk rises more slowly.

### Menopause or Ovaries Removed

For decades, millions of women have used estrogen replacement therapy (ERT) after menopause. ERT is approved to help relieve symptoms like “hot flashes” and to protect against osteoporosis, a crippling bone disease. If you’ve gone through menopause, or had your ovaries removed, you may be considering ERT. It’s important to consult your doctor. You need to ensure your decision is based on the most current information about the health effects of these therapies.

# Diagnostic Tests

In order to find the cause of your stroke or TIA, you may be scheduled for one or more of the below procedures. Several of these tests may have been done in the Emergency Department. Your doctors and nurses will answer any questions you may have.

## Cerebral Angiography

Cerebral Angiography provides a view of the vessels in your head and neck (cerebral vascular system) after you receive an injection of dye. Let your nurse and doctor know if you are allergic to contrast dye, iodine or shellfish.

## CT Scan (Computed Tomography)

A CT produces detailed pictures by combining advanced X-ray machines with specially programmed computers. These detailed pictures can provide cross-sectional views (like slices through an orange) of just about any organ or bone in the body.

## CT Perfusion

CT perfusion of the head uses special X-ray equipment to show which areas of the brain are adequately supplied with blood (perfused) and provides detailed information about blood flow to the brain. CT perfusion is fast, painless, noninvasive and accurate.

## Doppler Studies

Doppler studies are used to identify occlusion of the veins or arteries. A Doppler ultrasound detects moving blood within the artery and creates a swishing noise that you will be able to hear through an audio speaker.

## Duplex Studies

Duplex studies are noninvasive procedures that combine Doppler ultrasound and images to view blood vessels as well as hear the blood flow through them.

## Echocardiogram

An echo is a noninvasive ultrasound procedure used to evaluate structure and function of the heart.

## Transesophageal Echocardiogram (TEE)

TEE is a miniature ultrasound transducer that is placed at the end of a tube inserted into the esophagus. It provides a closer view of cardiac structures without having to look through the muscles and bones in the chest. You will not be able to eat or drink for several hours prior to the procedure.

## Electrocardiogram (ECG or EKG)

A ECG/EKG is a simple and painless test to learn more about your heart rhythm. Electrodes are placed on your chest, shoulders, wrists and ankles to record your heart. A ECG/EKG provides a printed record of electrical activity. It is used to monitor and diagnose heart rhythm disturbances.

A smaller version, often called telemetry, may also be used during your hospitalization. This will stay on approximately 24-hours, but may be extended for close monitoring of your heart rhythm.

### Continuous ECG/EKG Monitoring

Continuous recording through an ECG/EKG may be recommended by your doctor to check the heart's electrical activity. It can be performed for periods up to 30 days or longer. It is used primarily to identify suspected cardiac rhythm concerns over time. With this technique, an ECG/EKG is recorded during unrestricted activity, rest and sleep. You may need to record activities and symptoms in a diary.

### Magnetic Resonance Imaging (MRI)

A MRI of the brain provides excellent pictures of the soft tissue structures of the brain. A MRI does not show acute bleeding as well as a CT scan, but it provides a better picture of the brain stem and related structures. Not everyone will have an MRI because of the strong magnetic fields created by the machine. The MRI is very loud. The technicians will discuss this with you and help make you comfortable during this procedure.

#### Contraindications to MRI may include:

- **Implanted devices:** pacemakers, cochlear implants, some prosthetic devices, implanted drug infusion pumps, neurostimulators, bone growth stimulators and certain intrauterine devices (IUDs).
- **Internal metallic objects:** metallic fragments, bullets, shrapnel; surgical clips, pins, plates, screws, metal sutures and/or wire mesh.

### Magnetic Resonance Angiography (MRA)

A MRA is a type of MRI that provides pictures of the arteries in the neck and brain.

### Videofluoroscopy Swallowing Study (VFSS)

A VFSS examination is designed to detect difficulties a person may have in swallowing to ensure an individual is eating safely. Individuals are watched with fluoroscopy while they try to eat various types of foods. Trained therapists and radiologists watch closely to ensure that food goes into the esophagus, not into the airway (windpipe) accidentally, which is called aspiration.



## Medications

### Antithrombotics | Includes antiplatelet and anticoagulant medications

Plaque can expand and reduce blood flow through an artery. One of the biggest risks is that it can break where a blood clot can form. Anti-thrombotics help prevent clots by stabilizing the plaque and prevent them from forming.

*The nature of anti-thrombotic medications are to prevent clot formation, therefore they carry some risk of bleeding. Although as a group these medications do increase your risk for bleeding, there are some diseases for which the doctor may order one or more anti-thrombotic medications. If this is the case, do not start or stop taking any of these medications without discussing it first with your doctor.*

### Antiplatelet Agents

Antiplatelet agent medications help to prevent strokes by stopping platelets from sticking together and starting a clot. Make sure your doctor knows if you are also using any blood thinners (such as Coumadin® (warfarin), aspirin) or any other type of pain or arthritis medicine, such as indomethacin, Advil® (ibuprofen). Taking an antithrombotic with these medicines increases your risk of bleeding.

### Anticoagulants

Anticoagulant medications delay blood clotting and make it harder for clots to form. If you are started on Coumadin® (warfarin) your nurse will provide special instructions on medication side effects, food and drug interferences and special restrictions prior to your discharge. While taking this medication, you will need your blood checked regularly to monitor how well the the drug is working. You may have changes in your doses based on the results of the blood tests.

### Statins

Statin medications are used to lower cholesterol in your blood and to help prevent having another stroke. Diet and exercise can decrease your cholesterol, but statins have been shown to stabilize the plaque.

**Your nurse or doctor will discuss any new medications you may be prescribed. Some of the most common medications taken after a stroke are discussed in more detail on pages 15-17.**

Carefully review all of your new medications for special instructions and speak with your doctor if you have any other questions.



## Antiplatelet Agents

Aspirin, Aggrenox, Plavix and Brilinta are used to reduce the clotting ability of blood cells in people who have had an ischemic (clot) stroke or a transient ischemic attack (TIA) who may also have blood flow disorders or a history of blood clots.

### Drugs and Foods to Avoid

- Ask your doctor or pharmacist before using any other medicine, including over-the-counter medicines, vitamins and herbal products.
- These medications may cause stomach bleeding. Drinking alcohol can make this worse. If you have three or more drinks of alcohol every day, ask your doctor if you should use this medicine.
- Make sure your doctor knows if you are also using other antiplatelets or anticoagulants such as Motrin,<sup>®</sup> Advil<sup>®</sup> or Naprosyn.<sup>®</sup>
- This medicine can interfere with the action of many other medicines. Make sure your doctor has a list of all other medicines you use.

### Warnings while using this medicine

- Check with your doctor before using this medicine if you have or had bleeding disorders, vitamin K deficiency, liver disease, stomach ulcer, asthma, chest pain, heart disease, low blood pressure or kidney disease.
- Talk with your doctor before using this medicine if you are pregnant or breastfeeding.
- This medicine may cause incorrect results with some urine sugar tests.
- Stand up slowly from a sitting or lying position to decrease dizziness.



### Side Effects

**Call your doctor immediately if you notice any of these side effects:**

- Blood in stools or urine
- Chest pain
- Severe headache
- Severe stomach pain
- Skin rash, severe itching or hives
- Swelling of the face or eyelids
- Vomiting blood or material that looks like coffee grounds
- Wheezing or trouble breathing
- If you experience any type of head injury or fall.

**If you notice these less serious side effects, talk with your doctor:**

- Dizziness, lightheadedness, headache
- Easy bruising, nosebleeds
- Flushing (redness) in the face
- Indigestion, nausea, vomiting or diarrhea

**If you notice other side effects that you think are caused by this medicine, tell your doctor.**

# Anticoagulants

Anticoagulants (Pradaxa<sup>®</sup>, Eliquis<sup>®</sup>, Rivaroxiban<sup>®</sup>) are used to prevent abnormal clotting and to prevent harmful blood clots from forming or moving. When you get injured, your body's clotting system causes certain blood proteins (clotting factors) to work together to form a blood clot. These drugs decrease the formation of blood clots by slowing down one or more of these clotting factors in your blood. Because it slows down the clotting factors in your blood, the clotting process is slower and the risk for forming blood clots is reduced.

## Taking Other Medications

Consult your pharmacist before choosing over-the-counter medications. Many over-the-counter pain medications can increase your risk of bleeding when used together with anticoagulants. It is important to inform your doctor and pharmacist of any prescription and non-prescription medications, vitamins, nutritional supplements, and herbal products that you are taking or plan on taking.

## Notify your doctor immediately if any of the following occur:

- Have a serious fall or hit your head.
- Unusual bleeding or bruising.
- More bleeding than usual:
  - when brushing your teeth
  - with your menstrual period or any other vaginal bleeding
- Pink or brown urine.
- Red or black, tarry stools.
- Vomit that is bloody or looks like coffee grounds.
- Bleeding from a cut that lasts longer than normal.
- Dizziness, confusion or weakness.
- Fever, sickness, severe diarrhea or nausea.
- Rapid or unusual heartbeat, shortness of breath or chest pain.
- Excessive itching, rash, hives or difficulty breathing.
- Swelling of arms, hands, feet, ankles or lower legs.

## Side Effects

**Call your doctor immediately if you have any of these symptoms:**

- stomach pain
- heartburn
- nausea

Anticoagulants can lead to excessive bleeding or bruising.

## Before taking Anticoagulants

**Tell your doctor if:**

- You have ever had a bleeding problem or an ulcer in your stomach or intestine or have kidney disease.
- If you are pregnant or plan on becoming pregnant or are breastfeeding.
- You get pregnant while taking anticoagulants.





## Statins

Lowering blood levels of cholesterol and fats (lipids) may help prevent you from having another stroke and other cardiovascular event such as a heart attack. Cholesterol and fats can be measured by a blood test. You may have already had this test while you were in the hospital.

Although a diet and exercise program can also decrease your cholesterol and lipid levels, statins have also been shown to stabilize the plaque (fat and cholesterol built up in the wall of your arteries) to prevent it from breaking and causing a blockage. When plaque breaks it can also cause clots to form at the point of breaking.

As with any medication, statins should be taken as directed. There are some precautions you should be aware of while taking a statin.

### Drug Precautions

- Stop drinking alcohol.
- Do not take statins if you are pregnant or plan to get pregnant.
- Do not breast feed if taking statins.

### Let Your Doctor Know If You:

- Have an allergy or have had a reaction to statins previously.
- Take any herbal, non-prescription, over-the-counter or nutritional supplements.
- Have liver disease.



### Side Effects

**Call your doctor immediately if you have any of these symptoms:**

- Muscle pain, generalized weakness and fatigue.
- Flu-like symptoms or fever.
- Pain or discomfort in upper right part of your abdomen.
- Unusual bleeding or bruising.
- Yellowing of eyes or skin.
- Itching, rash or hives.
- Tightness of throat or hoarse voice, difficulty breathing or swallowing.
- Pain, difficulty or increased need to urinate.

**If you notice these less serious side effects, talk with your doctor:**

- Diarrhea
- Headache
- Dizziness
- Joint pain
- Sore throat
- Upper respiratory infection
- Difficulty falling asleep
- Lack of energy or extreme fatigue

## Stroke Treatments

Depending on the type and location of the stroke you had, the time it took to drive to the hospital, you may have received one or more of the following treatments:

### Mechanical Thrombectomy

A Mechanical Thrombectomy is a procedure where the doctor inserts a catheter into a large artery, usually the groin and threads it to reach a blood clot in the brain. The blood clot is then pulled out to restore blood flow.

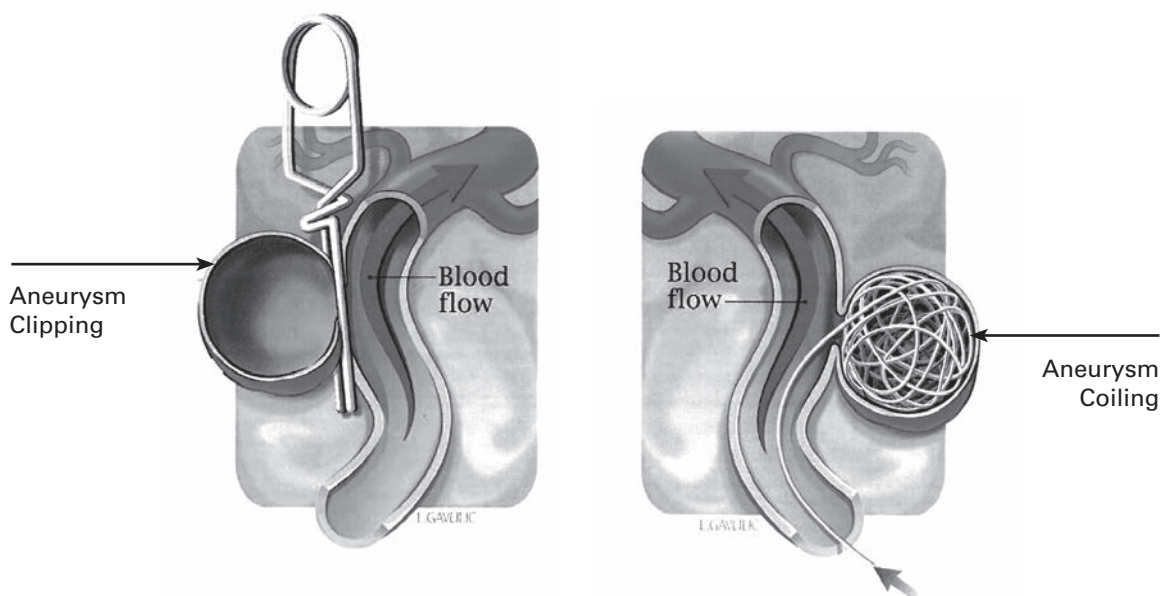
### Aneurysm Clipping

An Aneurysm Clipping procedure is done with brain surgery. During the procedure, the neurosurgeon applies a small metal clip to the base of the aneurysm to clip off the blood flow to the weakened area causing the aneurysm to form a clot. The metal clip is MRI compatible and does not react to the MRI magnets, so it can be scanned safely.

### Aneurysm Coiling

Aneurysm Coiling is done with Endovascular Therapy. A doctor, surgeon or radiologist inserts a very thin flexible catheter into the artery, usually in the groin and threads it through the arteries until it reaches the the aneurysm in the brain. At the tip of the catheter is a tiny platinum coil that is deposited into the aneurysm pocket. The doctor keeps repeating this process until the aneurysm is filled with the coils. The coils reduce the blood flow and cause a clot to form that seals the aneurysm from inside to help reduce the risk of a rupture and bleeding in the brain.

In some types of aneurysms, the physician may use a flow restriction device which reduces blood entry into the aneurysm over time.



## Stroke Rehabilitation

Rehabilitation is a critical part of recovery for many stroke survivors. It helps you to build your strength, capability and confidence so you can continue your daily activities despite the effects of your stroke.

It's important for you to work on your therapy and rehabilitation daily. Even though you will be taught to compensate for lost function, it's possible to recover function in affected areas years after the stroke.



### Rehabilitation Program

Under your doctor's direction, rehabilitation specialists come together to provide a treatment plan specifically suited to your needs. The number of services needed will vary and may include:

- audiology
- chaplaincy
- nutritional care
- occupational therapy
- physical therapy
- psychiatry/psychology
- recreational therapy
- rehabilitation counseling
- rehabilitation nursing
- social work
- speech-language pathology
- survivor/family education

### When Does Rehabilitation Begin?

Rehabilitation will begin when your doctor determines that you're medically stable and able to benefit from it. Services are provided in many places and you may be involved in some or all of these settings:

- acute care and rehabilitation hospitals
- long-term care facilities
- at home through home health agencies

### What Will I Do in Rehabilitation?

What you do in rehabilitation depends on what you need to become independent. You may work to improve your independence in many areas.

#### These skills may include:

- self-care skills such as feeding, grooming, bathing and dressing
- mobility skills such as walking or moving from a bed into a wheelchair
- communication skills in speech and language
- cognitive skills such as memory or problem-solving
- social skills for interacting with other people

Vocational evaluation and driver's training can improve your physical and emotional stamina so you can go back to work and be part of a rehabilitation program.

– continued on page 20

# Stroke Rehabilitation - Continued

Not all stroke survivors are alike. They act differently depending upon what part of the brain is injured, the severity and type of injury, how recently the stroke occurred and their previous personality and behaviors. Some areas of the brain may work normally while others will not. Although the following will depend on the area of the 'brain attack,' there are some common identifiable changes that occur with many stroke survivors. These changes include: emotional, memory, physical, problem solving, reasoning and judgment problems.

### Levels of Assistance

Rehabilitation professionals will evaluate your safety and ability to perform everyday tasks. While some people are discharged at an independent level of function, many others require some form of supervision.

### Periodic Assistance

Help may be needed if you have problems that require occasional assistance such as: paying bills, refilling prescriptions, completing home maintenance tasks or driving.

### Daily Assistance

You may require daily visits to make sure you are functioning safely at home. You may need help with meal preparation or reminders to take medications on a daily basis.

### Supervised Living

You may not function independently and will need supervised living or assistance performing most daily activities. You can be left alone for brief periods of time, such as a quick trip to the store.

### Constant Supervision

Stroke survivors who have significant motor impairments, are impulsive, or show deficits in awareness and judgment may require constant supervision. Even though they are encouraged to do as much as possible for themselves, they need somebody there to help them with all activities. People who need constant or 24-hour supervision should never be left alone.

***Research has proven neural connections do not reach an age where they cannot change in the brain. The ongoing process of synaptic reformation and death gives the brain its plasticity. This then gives the survivor the ability to learn and remember, to adapt to their environment and all the challenges brought with it, to acquire new knowledge and learn from fresh experiences throughout a lifetime. The brain's ability to act and react in ever changing ways is known as neuroplasticity. When stimulating or exercising the brain through new or unfamiliar tasks, it can trigger changes in the brain that create neuron connections.***



## Memory Changes After a Stroke

Injury to the brain from a stroke may result in memory changes. These memory changes are complicated as they affect each person differently.

Since everyone forgets or learns slowly from time to time, many people have a difficult time telling the difference between a normal memory lapse and a persistent memory disorder. When a person acquires a memory disorder from a stroke, they may have many more memory failures than a person with a normal memory.

### Memory Processes

Memory is the process of retrieving or recalling information. It also involves processing information from the environment and placing it in the memory centers of the brain. Some types of memory and behaviors are as follows:

#### Immediate Memory

Memory where information is held from a few seconds to a few minutes is called immediate memory. The process of immediate memory allows us to remember a phone number just long enough to dial the number.

#### Short-Term Memory

Short-term memory involves the storage and retrieval of information for a short period of time. This period of time can be from a few minutes to a few days. Short-term memory allows you to remember what you had for breakfast this morning or for dinner last night.

#### Long-Term Memory

Long-term memory is that which is retained for an indefinite period of time, from a few days to years. It is used when you recall how you spent your last holiday or vacation. Our long-term memory serves as our library and record center containing the things learned over time.

– continued on page 22

## Caregiver Tips

### Helping Stroke Survivors with Memory Disorders

- Be sure you have the person's attention before asking or telling them something. Eliminate distractions, such as the TV or another person talking, while telling them information.
- Provide a large calendar, wall clock or watch with the date displayed on its face. Cross out days that have passed and enter special dates, such as birthdays, on the calendar.
- When appropriate, consider using electronic devices such as alarm watches, computers or personal information managers.
- Keep directions simple and organized. If the person is having a difficult time recalling therapy strategies, such as the steps involved in transferring from the chair to the bed, write the steps in bold print on a piece of paper and post the paper on the wall.
- For a person who is having a difficult time remembering parts of his or her life before the stroke, create a photo history album, personal information card or fact sheet to help. Be tactful if the person is confused and rambling. When attempting to correct the person, avoid arguing or laughing at what they are saying.
- Use an appointment book or journal to record daily events. After making a new entry in the journal, take time to read through earlier entries.
- Use checklists to help the person remember when a task needs to be completed, such as taking a pill or getting ready for an appointment.
- After a stroke, it often takes a long time to build new habits. To start out, help the person set small realistic goals, versus setting too many goals at one time.

## Memory Changes After a Stroke - *Continued*

### Diagnosis and Treatment

Due to the complexity of memory disorders, it is important for stroke survivors with memory problems to be evaluated. All rehabilitation professionals informally evaluate a stroke survivor's memory skills, but a neuropsychologist or speech-language pathologist often perform formal memory evaluations. The evaluation can distinguish whether the memory problem is the result of the stroke or from another condition.

Once a diagnosis is made, therapy can be directed toward the use of strategies such as rehearsal, visual imagery association and chunking to improve memory. If memory problems persist despite therapy and use of strategies, the person may be able to use devices such as calendars, schedule planners, alarm watches and even electronic devices to aid their memory.

Recovery from memory problems depends upon the severity of the stroke, the location of the stroke in the brain, and the survivor's awareness of the problem. It is not uncommon for memory problems to persist with certain types of strokes.



## Problems in Reasoning, Problem Solving and Judgement After a Stroke

Some stroke survivors struggle with reasoning, problem solving, and judgment, which can be very challenging for themselves and their families. Reasoning is a type of thinking which allows us to draw logical conclusions about situations. Problem solving involves using this information to analyze situations and find solutions to everyday problems. Judgment refers to the ability to make appropriate decisions and behave reasonably in a variety of situations.

### Diagnosis and Treatment

Rehabilitation doctors, speech-language pathologists, physical and occupational therapists, evaluate stroke survivors for problems in reasoning, problem solving and judgment during their initial evaluations and throughout the course of treatment. Once the initial assessment is complete, a therapy plan is developed.

### Behaviors associated with reasoning, problem solving and judgment deficits

Stroke survivors with deficits involving their reasoning, problem solving, and judgment may exhibit some of the following behaviors:

- Difficulty completing routine tasks. A survivor may have difficulty thinking of possible causes of a given situation and not understand why a particular problem is occurring. For example, a survivor may become frustrated that their wheelchair won't move, not recognizing that the brakes are locked.
- Thinking there's only one solution to a problem, they may become frustrated performing an everyday task such as opening a container or operating the television remote.
- They may become confused when performing everyday tasks such as using eating utensils inappropriately.
- Acting impulsively, such as quickly getting out of the wheelchair before moving the footplates or locking the brakes, is another problem that may arise.

– continued on page 24



### Caregiver Tips

#### Helping Stroke Survivors with Problems in Reasoning, Problem Solving & Judgement

- Try to follow a daily, predictable routine.
- Keep directions simple and direct. You may need to write instructions on paper.
- Limit choices in decision making. Give a few, specific choices instead of asking for an open-ended decision.
- Review possible solutions to problems aloud and provide guidance to make the best decision or solution. Point out the possible short and long-term consequences of decisions.
- Avoid making decisions under stressful conditions or time pressures when possible.
- Be very clear and specific when correcting inappropriate behavior, emphasizing it is the behavior that is wrong, and not the survivor. Give examples of more appropriate or desirable behavior for that situation.
- Reward good judgment and decision making.
- Be realistic about the stroke survivor's capabilities. Do not allow the person to do tasks where their safety is in jeopardy.

## Problems in Reasoning, Problem Solving and Judgement After a Stroke - *Continued*

- Concrete thinking and difficulty relating to ideas beyond the immediate present (the “here and now”) may occur. For example, the survivor may refuse therapy because a friend is supposed to visit and they don’t want to miss him/her – even though the visit is scheduled for later in the evening.
- General confusion regarding time of day and time management. Poor understanding of how much time daily tasks take to complete.
- Difficulty understanding abstract concepts such as understanding the symbols on the hospital bed or call light.
- Difficulty sequencing the steps of routine tasks such as putting on clothing in the incorrect order. For example, putting shoes on before socks.
- Using poor judgment – not recognizing deficits and thinking they can walk without assistance, drive safely, etc. Survivors with poor judgment also may not see the need for therapy.
- The inability to see things from other points of view and thinking almost entirely of their own needs. Lacking the ability to appreciate or understand what another person is feeling.
- Being influenced by the attractive aspects of a situation and not thinking of the long-term consequences. For example, giving money to a grandchild while struggling to pay monthly rent.
- Some survivors may perseverate that is a continued repetition of words, thoughts, or acts not related to the current issue at hand.





## Emotional Changes After a Stroke

### Post-Stroke Depression

Because of damage in the brain, stroke survivors may develop what is known as Post-Stroke Depression (PSD). PSD is common after a stroke, often goes undiagnosed and can be devastating. Many symptoms of depression may be seen within six months after a stroke; however it can take up to two years to develop. PSD symptoms may be misinterpreted as a change in behavior or mood caused by the stroke and it may be thought that these changes cannot be helped. Although mood changes after a stroke may be common, some can be treated.

Help the survivor take the Depression Screening Questionnaire on page 27 to recognize the signs to seek medical guidance. Proper diagnosis and treatment can benefit stroke survivors by improving their quality of life, health and motivation for rehabilitation.

### Characteristics of Depression

Depression is a pattern of behavior that is disruptive and persists for more than two weeks. It is not just 'having a bad day.' It affects thoughts, feelings and the ability to function each day.

#### Some common characteristics of depression include:

- A persistent low or sad mood.
- Feelings of hopelessness or pessimism, such as being unable to see themselves making any progress.
- Feelings of guilt, worthlessness or helplessness.
- Loss of interest or pleasure in hobbies and activities that were once enjoyed.
- Lack of interest in self or others.
- Avoiding going out.
- Fatigue or decreased energy, in excess of what can be expected after a stroke.
- Difficulty concentrating, remembering or making decisions.
- Changes in sleep pattern with no obvious cause.
- Appetite and/or weight changes with no obvious cause.
- Thoughts of death or suicide.
- Restlessness, irritability, angry outbursts or exaggerated sense of frustration.
- Chronic aches and pains that do not improve with treatment.



PSD may occur as an emotional response to the sudden onset of disability and change that comes as the stroke survivor learns to cope. It may also be due to the brain damage caused by the stroke as chemicals in the brain may become unbalanced and may lead to depression or other mood changes.

### Caregiver Tips

#### Helping Stroke Survivors with Depression

- Social support is important for PSD recovery. Family and friends can help by trying to encourage interest in social situations, promoting participation in leisure activities and providing opportunities to take part in spiritual activities.
- PSD can slow or halt rehabilitation efforts and make recovery and daily life difficult.
- Family members and caregivers may be in the best positions to help identify possible depression and notify the doctor promptly after the stroke survivor is discharged from the hospital.
- It is important for family members and caregivers to understand that stroke survivors with signs of depression should be evaluated and have options for treatment.

### Characteristics that Mimic Depression

Injury to the brain often causes emotional disorders such as apathy and emotional lability. Apathy describes a person who is unresponsive or indifferent to parts of their emotional, physical, or social life. People who have apathy often seem to lose interest in things going on in their lives.

Emotional lability refers to uncontrollable laughter, crying or smiling. It can have a significant impact on relationships and social functioning and can often cause embarrassment and avoidance of social interactions.

### Treatment

Antidepressant medications and psychotherapy, or talk therapy, are the most common treatment options for depression after a stroke. Peer support groups may also be helpful for stroke survivors to relate to each other's experiences. It is also important for stroke survivors who have started new medications remain on these until their doctor instructs them to stop taking the medications. Stopping antidepressants abruptly may lead to unwanted side effects or the survivor may relapse and develop depression again.

### Screening for Depression

Trinity Health wants to help ensure that the stroke survivor receives treatment for PSD. Stroke survivors with language, cognitive or attention problems may have difficulty expressing their emotions to family and caregivers. While the questionnaire does not diagnose depression, it's a tool to help evaluate mood changes even if the survivor does not have aphasia (language impairment).

**The questionnaire should be done prior to the next visit with the doctor or whenever depressive symptoms develop into a pattern. It can be used for approximately two years after the stroke.**

If the behaviors are persistent and consistent with PSD, then the doctor can determine if and what type of treatment should be started (see page 27 for the Depression Screening Questionnaire).



## Depression Screening Questionnaire

This questionnaire should be completed before your next visit with the doctor or when depressive symptoms develop into a pattern. It can be used for approximately two years after the stroke. Your doctor will determine if you have symptoms indicating depression, a mood disorder, or PSD mimic. Additional testing may be ordered to help determine an individualized treatment plan. This screening tool does not diagnose depression.

Name \_\_\_\_\_ Date \_\_\_\_\_ **Total Score** \_\_\_\_\_

Person completing questionnaire \_\_\_\_\_ Relationship \_\_\_\_\_

**In the last week, how often has the stroke survivor shown the following behaviors:**

	OFTEN	SOMETIMES	RARELY	NEVER
	0	1	2	3
<b>1</b> Does he/she have weeping spells? .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>2</b> Does he/she have restless disturbed nights? .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>3</b> Does he/she avoid eye contact when you talk to him/her? .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>4</b> Does he/she burst into tears? .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>5</b> Does he/she indicate suffering from aches and pains?.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>6</b> Does he/she get angry? .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>7</b> Does he/she refuse to participate in social activities? .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>8</b> Is he/she restless and fidgety? .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>9</b> Does he/she sit without doing anything?.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>**10</b> Does he/she keep him/herself occupied during the day?.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Scoring

This ten item questionnaire was developed based on observational behaviors thought to be associated with mood changes after a stroke. Each item is scored on a 0-3 point scale, with a high score indicating low mood.

**For items 1-9** scoring for the answers is never = 0, rarely = 1, sometimes = 2, and often = 3

**\*\* Item 10** is scored backwards, with never = 3, rarely = 2, sometimes = 1, and often = 0

**If the results of this questionnaire score a total of 10 points or more at any time, contact the doctor for guidance on testing or treatment options.**

# Physical Changes After a Stroke

There are a wide range of physical changes that may occur in a person depending on the location and severity of the stroke. Some may be subtle to severe and include: weakness of muscles on one side of the body, changes in vision, decreased sense of one's limbs/body in space, decreased balance, pain and inability to control one's bowel or bladder. Each stroke is different and very specific to each individual. Caring for and treating a person after a stroke varies depending on their unique needs.

## Apraxia

Some stroke survivors may have difficulty in producing a motor movement in response to a command, this is called apraxia. Survivors often know what they need to do, but do them with the wrong movements. For example, a person with apraxia may be asked to wash their face and start to wash their arm. Apraxia therapy consists of relearning the movement patterns for speech, mobility and other daily activities. Often it will require hand-to-hand assistance to help a person with apraxia complete a necessary task.

## Bowel and Bladder

After a stroke the bowels or bladder may empty with little warning. If a survivor has problems with movement or communication this can be a real problem. Survivors may be placed on a toileting schedule perhaps every two-three hours. A time may be set to empty their bowel. They may need absorbent briefs. This may be temporary and treatable with help.

## Tiredness

Tiredness may be caused by the brain injury. It may also be a result of malnutrition, decreased activity, depression, poor sleeping or a side effect from medication. Things normally taken for granted such as dressing, bathing, etc., may require the survivor to be constantly alert and this will take energy.

## Weakness or Paralysis

Hemiplegia/hemiparesis is paralysis/weakness to the side of the body that is the opposite of the side with brain damage. Weakness can contribute to the survivor having difficulty with mobility, such as getting out of bed or walking.

## Shoulder Subluxation

Weakness in the arm can put the survivor at risk for shoulder subluxation, a painful condition caused by separation of the arm from the shoulder. Never pull on the weakened arm to help lift or change a position.

## Decrease in Proprioception/Sensation

Decrease in proprioception/sensation is when a person can lose a sense of where the body is in space which causes balance problems and possible injury from being unaware of this problem.

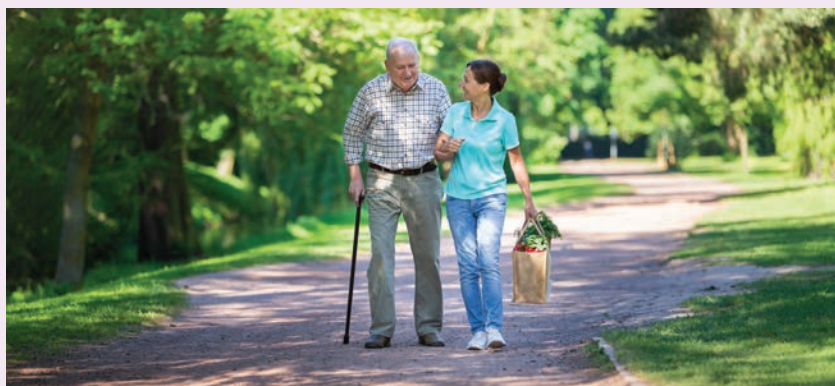
Pain, numbness and odd sensations on the affected side of the body can also make the survivor tense and uncomfortable.

## Deep Vein Thrombosis (DVT)

DVT can occur after prolonged bed rest, decreased activity for a long period of time and obesity. Each of these increase the risk of developing a blood clot in an arm or leg. A DVT can lead to a pulmonary embolism (PE) – or a blood clot in the lungs – and can be severe enough to cause death. Staying active, hydrated and taking medications as prescribed can all help decrease the chances of a DVT. Some PEs can also be as a result of an irregular heart rhythm such as atrial fibrillation or pulmonary embolism.

### Seek medical treatment if you have any of these signs or symptoms of DVTs:

- Deep leg pain, cramping or an aching feeling in the legs.
- Fever.
- Leg pain that begins suddenly, but decreases when the person elevates the leg.
- Skin that is warm to touch and a faint reddish-blue discoloration.
- Sudden severe shortness of breath – call 911.
- Sudden swelling in the affected leg.



## Regaining Movement and Function

### You can help to improve movement and function by assisting the survivor with the following:

- Aligning your loved ones shoulders, head and hips while they are in bed or a chair.
- Establishing a set routine when working on skills. Do the skills in the same order every day and break down tasks into a series of steps.
- Helping to prevent complications by assisting with daily care activities such as helping with grooming, dressing or bathing. The survivor may need help with turning, sitting up in bed or standing.
- Keeping a person's feet flat on the floor or on a footrest.
- Learning how to participate in a transfer especially if the survivor will be using a wheelchair.
- Learning how to help before they go home.
- Supporting a limp arm or gently straightening curling fingers.
- Working on the goals that therapists provide each day.

# Spasticity

Spasticity is a medical term that describes the most common type of abnormal muscle tone that occurs following a stroke. Muscle tone describes how a muscle looks or feels. Damage to the brain from a stroke affects how the brain sends messages to the muscles. The more damage to the brain, the more abnormal muscle tone present. When there is too much tone present in the muscles, spasticity occurs. The problem of spasticity has nothing to do with strength or weakness. The brain injury from the stroke causes the muscles to involuntarily contract, or flex, when the person attempts to move, creating stiffness and tightness of the limbs and trunk of the body.

## Characteristics of Spasticity

### Signs of high tone include:

- Movements that may be stiff, jerky and uncontrollable and the person cannot move freely.
- Hand, arm, leg or fingers are in a bent or straight position all the time.
- Possible painful muscle spasms.

## Diagnosis of Spasticity

Doctors, physical therapists and occupational therapists diagnose and treat spasticity. During an assessment, the pattern of the stroke survivor's motor function and their ability to control their muscles are evaluated. An assessment of how muscle stiffness affects bathing, toileting, eating, sleeping, dressing, sitting, transferring from one place to another (such as from a bed to a chair), walking, and standing is also performed.

Also during the assessment, the specific muscles affected by spasticity must be identified so the therapists can determine which muscles are working against the intended movement. This is done not only by observing the stroke survivor, but also by touching the muscles or performing biomechanical and electrophysiological tests.

## Treatment

Treatment of spasticity depends upon its severity and how it interferes with daily living or sleep. Goals of spasticity treatment include pain reduction, increasing range of motion in the affected limbs, prevention of complications and worsening of spasticity. Improving the ability to perform daily activities, increase independence, and reduce dependence on caregivers are also considerations. In some stroke survivors with mild spasticity, the best treatment may be to "watch-and-wait" instead of starting treatment immediately. Once the severity of spasticity has been established, the doctors and therapists will devise a treatment plan, which may include any, or a combination of, the following:

### Physical Stretching and Exercise

Stretching is aimed at achieving a full range of motion and preventing permanent muscle shortening.

### Proper Positioning

Proper positioning in a chair or wheelchair and while standing helps the muscles work better together and helps make muscle tone more normal.

### Casting, Splints, and Braces

Casting stretches the muscles and may aid in the development of normal movement. Splints or braces may be used to hold an arm or leg in a stretched position and also lower the muscle tone of that limb.

**Ultrasound, Cryotherapy and Heat Therapy**

Use of ultrasound, cold packs and warm packs may be used to temporarily ease pain and allow for greater stretching during range of motion exercises.

**Functionally Based Therapies**

Functionally based therapy involves the repetition of everyday tasks in an attempt to normalize the spasticity as much as possible through retraining, patterning, and positioning the muscles to mimic normal movements.

**Oral Medications**

Several oral medications work on the brain to help relax the nerves so they don't send continuous messages to the affected muscle telling it to contract. Medications work to decrease stretch reflexes, muscle spasms, pain, and tightness so range of motion can be improved. Side effects including weakness, drowsiness, nausea, liver damage, and confusion may occur with oral medications, so use and benefits of oral medications must be closely monitored.

**Injections**

Some medications can be injected to block nerves and relieve spasticity within a particular muscle group. The injection of medications may be used to help evaluate which muscles are contributing to the spasticity and to determine any benefit from long-term treatment.

Botox® (OnabotulinumtoxinA): is used in patients with limb spasticity. It is injected directly into the affected muscles, blocking overactive nerve impulses that trigger disabling contractions to reduce the severity of increased muscle tone in the elbow, wrist and fingers.

**Intrathecal Baclofen (ITB) Therapy**

ITB therapy refers to the delivery of the medication Baclofen (a potent muscle relaxer) into the space surrounding the spinal cord. The delivery method is a three-part system consisting of: a programmable pump with a storage area for the drug, a clear, flexible silicone tube or catheter inserted into the thecal space, and a programming device. Because the drug is delivered directly to the spinal cord, much less Baclofen is needed with ITB therapy and the side effects are fewer and less severe compared to taking oral Baclofen. ITB therapy is used to treat severe spasticity and people undergo an ITB therapy screening test to determine whether it will be effective in treating their spasticity prior to pump placement.

**Caregiver Tips****Helping Stroke Survivors with Spasticity**

As the choice of treatments is created for a stroke survivor with spasticity, families and caregivers should meet with the doctors and therapists to learn what the treatment plan is and what they can do to help their family member.

**It is helpful for families to:**

- Learn which positioning techniques reduce muscle tone and improve the stroke survivor's level of comfort. Pain control is very important to ensure that spasticity treatments can be done successfully.
- Learn how splints or braces should be applied. Make sure when they are removed their skin is intact. Take precautions to reduce skin injury. Talk to the doctor if you see skin problems.
- Ask whether there are any stretching exercises or strategies they can use to improve the person's range of motion, mobility and functions.
- Attempt to control and reduce any situation that appears to increase pain and frequency of spasms, as strong emotions such as excitement, anger and fear can increase abnormal tone.
- Communicate with doctors and therapists regarding which treatments seem to be more effective in controlling the spasticity.
- Take time to evaluate whether and how the treatment will improve the stroke survivor's quality of life.
- Communicate with the doctor and therapists about whether you have the resources, time and physical ability to participate in the treatment plan.
- Be supportive and help motivate the stroke survivor to be as independent as possible, while being realistic about the possibilities of treatment and its effect.

## Difficulty Swallowing After a Stroke

Nearly 50% of stroke survivors lose the ability to control foods and/or liquids while swallowing. This is called dysphagia and is due to a new weakness in the muscles of the tongue and throat.

### Signs of Dysphagia

*General signs of swallowing difficulty following a stroke include:*

- Coughing during or shortly after swallowing.
- Difficulty taking pills and/or swallowing water.
- Extra effort or time needed to chew and swallow.
- Fatigue and weight loss.
- Food drooling out of one side of the mouth or remaining in the mouth after a meal, usually between the teeth and cheek.
- Lack of awareness that food is in the mouth.
- Refusing to eat certain foods that were previously enjoyed.
- Recurrent lung or bronchial infections.
- Vomiting after eating or drinking.
- Wet, gurgly voice during or after eating.



### Tests Used to Detect Dysphagia

When symptoms of dysphagia are present, the doctor will refer the stroke survivor to a therapist who specializes in the assessment and treatment of swallowing disorders. There are two types of evaluation frequently used to determine swallowing problems that may occur when a person has had a stroke.

#### **Bedside Swallow Evaluation**

In a bedside swallow evaluation the therapist examines the muscles used in swallowing and then observes the person eating foods and liquids of different consistencies. Many times the therapist is able to determine what type of food and liquid consistencies are safe for a person to eat. Other times the therapist cannot be completely sure and further testing is requested.

#### **Videofluoroscopic Swallow Study (VFSS)**

When a therapist is unsure whether food is entering the lungs during or immediately after a swallow, the doctor will order an X-ray procedure called videofluoroscopy. This type of X-ray records the person swallowing a variety of food and liquid consistencies and shows whether the food and liquids are passing normally through the throat to the stomach. This test also gives precise information on which foods are safe for the patient to swallow or if certain therapy techniques make swallowing safer for the patient.

### Treatment

Based on test results, the therapist, doctor and dietitian will develop a treatment plan for the stroke survivor. Certain types of food and consistencies of liquids may be restricted and a special dysphagia diet may be ordered. Recommendations regarding how foods and liquids are eaten may also be made. In addition to diet changes, the patient may well be given certain exercises aimed at strengthening the swallowing muscles. If the dysphagia is severe and the patient cannot take adequate nutrition by mouth, an alternate feeding method may be required.



## Diet

- Pureed or advanced pureed where some chopped foods are allowed.
- Mechanical soft diet where meats are ground or chopped and only softer canned fruits and vegetables are served.

## Liquid Recommendations

- Thin liquids that can be sipped from a cup, but not a straw.
- No thin liquids. Sometimes they may need fluids thickened to a honey or nectar consistency.

## Alternate Feeding Methods

***When a survivor cannot swallow enough to maintain their hydration, nutrition or are at risk for aspiration doctors may order:***

A feeding tube may be required. The tube is passed through the nose and throat to the stomach (NG tube) or a tube will be surgically inserted into the stomach (gastrostomy) or small intestine through the abdominal wall (jejunostomy). A specially blended “milkshake-type” product will be infused directly to the stomach/intestine through these tubes. This solution is specially formulated and recommended by a registered dietitian and doctor.

## Dysphagia Strategies

- Eat and drink while sitting upright.
- Place food in the stronger side of the mouth.
- Take small sips, bites and then alternate sips of liquids with bites of solids.
- Check mouth after meals for pocketed food and avoid foods with mixed consistencies.
- Keep well hydrated.
- Wear glasses or dentures, if appropriate.
- Notify doctor if a persistent dry mouth or lips, dark colored urine or sudden weight loss.



## Caregiver Tips

### Helping Stroke Survivors with Dysphagia

It's important to follow the advice of the rehab team about which foods and liquids are safe to swallow. Dysphagia can be life-threatening when food blocks or enters the airway. Even with proper follow-through of recommendations, life-threatening situations may arise.

#### Some things you can do to help are:

- Do not pat a stroke survivor on their back if they are coughing or ask them to speak to you.
- Learn how to perform the Heimlich maneuver.
- Learn how to administer cardiopulmonary resuscitation (CPR).
- Keep a list of the dysphagia strategies and diet recommendations handy.
- Keep emergency numbers posted or have them programmed into the phone.
- Ask the dysphagia therapist or registered dietitian for a list of foods and beverages allowed.
- Do not attempt to force a stroke survivor to eat when they are too tired or weak to swallow.
- Notify their doctor, if they are not eating enough of their meals or are having issues with constipation, weight loss or dark urine.

## Speech Changes After a Stroke

### Aphasia

The term aphasia refers to problems caused by damage to the areas of the brain that control speech and language. When a patient develops aphasia they may have difficulty understanding spoken language, expressing their thoughts in words, reading and writing. There are several types of aphasia that occur depending on where the stroke occurred in the brain.

### Types of Aphasia

Aphasia may be classified in terms of whether the patient's communication difficulty involves expression and/or reception.

#### Expressive Aphasia

A patient with expressive aphasia has difficulty expressing themselves verbally and/or through writing.

#### Receptive Aphasia

A patient with receptive aphasia has difficulty in listening and understanding what is said and/or reading and comprehending what is written.

#### Global Aphasia

Patients may have a combination of receptive and expressive aphasia following a stroke also known as global aphasia. With global aphasia reading, writing, speech and understanding can all be impaired. Usually there is very little speech and they have limited understanding.



## Aphasia Classification

### Nonfluent Aphasia

Patients with nonfluent aphasia typically have a slow manner of speaking due to word finding difficulty — often just speaking with simple words or phrases. They may pause and use single or short sentences.

### Fluent Aphasia

Patients with fluent aphasia may speak at a normal rate and tone, but the content of what they say does not make sense or contains jargon. A person with fluent aphasia may speak full sentences without meaning or have garbled content. If the patient cannot talk, they usually cannot write either. This is a problem with processing the language in general. The use of a picture or word board may be too difficult to use.

## Diagnosis and Treatment of Aphasia

The doctor will order a speech-language evaluation where the speech-language pathologist will assess comprehension and expression in order to determine the type and extent of the aphasia. Once the diagnosis is complete, the therapist will create a treatment plan specifically for that patient. Therapy plans typically include tasks and drills aimed at improving language skills.

## Toileting Schedule

Consider a regular toileting schedule for those who are aphasic. They may know when they need to use the restroom, but may not express it. A urinal, bedpan, bedside commode or call light may all be unfamiliar.



## Caregiver Tips

### Helping Stroke Survivors with Aphasia

Even though speaking and understanding conversation may be hard, include the aphasic patient in the “speaking world.”

- Speak simply and encourage the patient to respond in any way possible.
- Decrease environmental distractions, such as TV, and make sure you have the person’s attention before speaking.
- Give the person with aphasia time to respond.
- Ask direct, specific questions requiring ‘yes’ or ‘no’ responses versus those requiring longer verbal answers.  
For example, ask “Did you go to therapy today?” versus “What did you do in therapy today?”
- Encourage the use of all modes of communication such as gestures, facial expression, yes/no or choice questions and any speech present.
- Be positive and avoid frequent criticisms and corrections. Create an air of relaxation and an attitude of acceptance and patience. Avoid responding with phrases such as “calm down” and “relax.”
- Ask about computer programs that may help with communication.
- Consider music or art therapies.

### Caregiver Tips

#### Helping Stroke Survivors with Dysarthria

Family members and caregivers may learn which strategies work best to improve speech clarity.

- You could say, “Please try to speak a little louder” or “Please state one word at a time” may be helpful.
- Attempt to have a conversation in a quiet area – turn the TV or radio off or avoid conversing in a noisy area.
- Save lengthy conversations for when the survivor’s level of alertness and overall level of energy are best.
- When dysarthria is severe, encourage the patient to gesture or point to items in addition to speaking.



## Speech Changes After a Stroke

### Dysarthria

Dysarthria is the term for motor speech disorders that may occur when the muscles that control speech are affected by a stroke. The different aspects of speech such as speech sound production, breath support, rate and rhythm of speech, vocal intensity, and quality of voice may be affected. Movement of the jaw and tongue may be impaired and drooling may be present. The type of changes noted in a person’s speech are related to where the stroke occurred in the brain.

### Characteristics of Dysarthria

**Some of the more common characteristics of dysarthria are:**

- Slurred pronunciation of speech sounds ranging from mildly distorted, but understandable, to severely distorted and cannot be understood.
- Voice is too soft or too loud.
- Change in the voice quality – an individual’s voice may now sound harsh, breathy, hoarse, nasal or strained.
- Rhythm of speech may be flat, choppy or rushed.
- Rate of speech may be too fast or too slow.

### Diagnosis and Treatment

The doctor will order an evaluation to determine the type of dysarthria and customize a treatment plan.

**Although each treatment plan is tailored for an individual’s needs, most include:**

- Practice in making the distorted speech sounds more distinct
- Use of different phrasing strategies that make speech more intelligible
- Exercises for muscles to make them stronger or more coordinated.
- Exercises to improve breath support .
- Exercises to improve vocal quality.
- Education to increase the survivor’s self-awareness of errors and the best strategies to improve speech and vocal quality.
- Evaluation to determine whether assistive devices such as palatal lifts to decrease nasality or voice amplifiers to improve speech would be helpful.
- Consider the use of computer programs that may aid communication.

## Visual, Perceptual Problems and Neglect After a Stroke

### Double Vision

Double vision or 'diplopia' results when the stroke impairs the survivor's ability to coordinate use of both eyes. Depending on the extent of diplopia, survivors may see two images of a single item or see a distorted version of the item. Stroke survivors with double vision can have problems with balance, walking and estimating distances in performing everyday activities. They will have difficulty reading, as letters and words on the page are blurred or jump around. Concentration is difficult to maintain and the survivor can struggle to keep their place while reading.

### Neglect

Neglect is the failure to pay attention to a particular side of the environment. Survivors with strokes in the right side of their brain may have a 'left neglect' where they ignore the left side of their environment. Survivors with strokes in the left side of their brain may have a 'right neglect' where they ignore the right side of their environment. Neglect may occur with or without the presence of a visual field loss.

One sided neglect of the body causes survivors to ignore everything on the affected side of their body. They may seem unaware of things such as food on one half of a plate or be unable to recognize their own arm or leg.

### Visual Field Loss

Visual field losses essentially are gaps in the survivor's visual field. Depending on the severity of the stroke, these gaps may only affect a sliver of the survivor's visual field in the right eye, left eye, both eyes or may affect over half of the field. Another type of visual field loss may consist of blind spots scattered throughout one or both visual fields.

### Diagnosis and Treatment

Many survivors are unaware of any visual problems they have acquired as a result of their stroke. Careful diagnosis is very important as the symptoms of visual and perceptual problems may be misinterpreted as an attention or behavioral problem. During rehabilitation, occupational therapists assess a stroke survivor's visual and perception skills while performing every day activities. Speech-language pathologists assess visual and perceptual ability while reading. Occupational therapists may perform a more in-depth visual assessment. At times, survivors may be referred to an optometrist or ophthalmologist.

Treatment for visual-perceptual problems and neglect consists of helping the survivor identify and compensate for the problems while performing everyday activities. Specific exercises are aimed at improving the survivor's ability to scan their environment in an organized fashion or to pay attention to the neglected side. Other strategies include taping one of the lenses on their glasses or wearing an eye patch.



### Caregiver Tips

#### Helping Stroke Survivors with Visual Perceptual Problems and Neglect

- Keep distracting stimuli and clutter to a minimum. Clear the room of obstacles that could cause the survivor to trip and fall. If the survivor is having difficulty locating food items on their tray, present one food item and utensil at a time.
- If you want to be seen and/or heard, approach the stroke survivor from their impaired side. This draws their attention to the neglected side of their body. If possible, position the bed so the person is forced to look toward their weak or impaired side.
- For their safety do not leave individuals with neglect unattended on a commode, toilet or chair or even sitting at the side of the bed.
- Help the survivor become aware of their visual problem. Tactfully remind them to look toward the side of the environment they are not processing. Remind them to use the strategies recommended by the rehabilitation therapists.
- Perform tasks in an organized fashion – keep grooming items in the same location so they can find them easily.



## Other Changes After a Stroke

### Driving

Survivors and their families should talk to the doctor about driving after a stroke. Depending on the level of stroke injury, some survivors may be able to drive again. In order to do that they may have to demonstrate that ability by being retested. Family should be aware that with some strokes, the survivor may not feel like they are impaired or even realize all of the effects of the stroke.

#### *Warning signs for unsafe driving:*

- Drives too fast or too slow for road conditions or posted speeds.
- Needs help or instructions from passengers.
- Doesn't observe signs or signals.
- Makes slow or poor distance decisions.
- Gets easily frustrated or confused.
- Gets lost even in familiar areas.
- Has accidents or near misses.
- Drifts across lane markings into other lanes.



### Returning to Sexual Relations

Strokes may not prevent having sexual relations. Side or bottom position may be appropriate for the stroke survivor. Other ways of being intimate such as massage, can be considered.

## Caregivers

Caregiving can be a very satisfying experience, but there is no denying that it can also be strenuous. Caring for a stroke survivor can be very demanding emotionally and physically. When you find yourself frustrated, be sure you try to distinguish between what you can and cannot change. Before frustration worsens, try an activity to help you calm down. This may be something as simple as counting to ten or taking a few deep breaths. Go out for a walk, call a friend, pray, meditate, sing, listen to music or take a bath or shower.

- Finding opportunity to break the routine and leave your caregiving responsibilities in other competent hands is essential. This is called respite care and it is essential so that you do not 'burn out' and can continue to care for the stroke survivor.
- Be sure you stay organized. Know what type of help you want and what you need.
- You may feel like you have a duty to take total care of your family member, especially if they cannot fend for themselves. A disabled person requires special attention and care. Creating a balance between time for yourself and the person you care for, will make your efforts more rewarding and will not feel like a burden.
- Well meaning friends and neighbors would be glad to help if asked, but may be unsure exactly how to help or worry they are interfering. You may be unintentionally discouraging them by appearing to have everything under control when you are really overwhelmed.
- Sometimes your friends may drift away and your social contacts may shrink. Feelings of loneliness, sadness, resentment or grief may follow. You can become angry at the changes to your life. This cycle is not a healthy state for you or your relationship with the stroke survivor.

### Don't Be Afraid to Ask For Help

Don't worry about repaying favors. Accept help when it is offered. Often just saying thank you is more than enough. People are often willing to help with: laundry, cutting the lawn, pulling weeds, shoveling snow, or filling the car with gas.

- Try naps or rest periods scheduled throughout the day.
- Do something you enjoy daily.
- While in the hospital you will be taught how to work with the stroke survivor.
- Have people visit so you can have a day or some time off to do things for yourself.



**If you are concerned and are having difficulty coping as a caregiver, talk with someone. Respite care and family counseling services may also be helpful. Contact one of our support groups or community resources provided on page 45. You can also speak with your social worker or case manager.**



### Caregiver Tips

#### Helping to Care for Stroke Survivors

You can help by dealing with your own reactions as you all learn to adjust.

- Be supportive in their daily efforts of recovery.
- Be realistic about the possible limitations the person will face.
- Be reassuring to let the person know they are needed and important and include them in decisions and activities.
- Encourage self help. Let the person do as much as possible for themselves and be patient if their pace is slow.
- Be patient and give the person time to answer questions and perform tasks.
- Do not criticize and try to stay calm when you feel frustrated or angry.
- Keep the person active – play games, watch TV or listen to music together.
- Ask friends to visit if the person is willing to see them.
- If you think your family member is depressed, talk to their doctor.

*Use the depression screening questionnaire on page 27 to help guide you.*

### Other Care Options

There are many options such as: adult day care, nursing homes, home health aides or household helpers, and food delivery services. Each of these have different coverage by insurance or out of pocket costs.

If you can, consider having a family meeting where roles of each member are defined and expectations can be sorted out. Talking about feelings or the need for help is difficult for many people and these types of discussions may bring up unresolved conflicts or long-standing grudges. Being able to work together to meet the common goal of caring for the stroke survivor is critical to your success.

Know who is the primary person to make decisions for the stroke survivor. Copies of a Living Will / Advance Directive and Durable Power of Attorney (DPOA) forms will be asked for whenever you go to the hospital.





## Stroke Survivor Safety

After a stroke, some stroke survivors are not aware of their limitations. This becomes a problem when they attempt activities that they are unable to complete. Some stroke survivors can be impulsive and put themselves at risk for injury.

### Household Safety

Following a stroke, an individual may experience poor safety awareness due to impairments in thinking, visual, and motor skills. Decreased attention, memory, problem solving and judgment may impair the person's ability to be aware of new impairments that can affect daily function.

People who are unaware of safety hazards are more likely than others to have accidents. As many stroke survivors are unaware of these hazards, the simplest way to prevent accidents is to remove the threat entirely. Although potential safety hazards are numerous, some of the more common hazards are listed.

**Individuals with high or low blood pressure may need reminders to stand up slowly, or get out of bed or the tub slowly, to avoid dizziness and falls.**

### Falls

Falls can create an avalanche of medical problems.

#### *To reduce the chance of falls:*

- Relocate obstacles (such as furniture that sticks out or clutter on the floor or stairs)
- Remove throw rugs, check for unsteady furniture or steps and move electrical cords from any walking path or tape them down.
- Make sure banisters or hand rails are not loose and are free of clothing or other items that may interfere with getting a good grip.
- In the bathroom, make sure rugs have non-skid backings and bath mats are pushed down tightly to achieve the best suction grip.
- Mold, mildew and soap scum can make surfaces slippery, so keep everything clean.
- Discourage your family member from holding onto towel racks for balance as they may detach from the wall. Install grab bars next to toilet seats.
- Climbing to reach objects results in many falls. If the stroke survivor has any unsteadiness or balance problems at all, make sure they avoid tasks such as, changing ceiling light bulbs, reaching high cupboards, hanging clothes, hanging curtains, washing windows, cleaning gutters, and painting. If your family member doesn't have good balance, never allow them to climb up on chairs and ask the occupational therapist if the person is able to use a ladder.
- Consider a safety alarm system that can be implemented if the survivor is alone and falls.

### Fires and Burns

Kitchen fires frequently start from oil and fat that is left to heat unattended on the stove. Burns result from touching hot burners and ovens. If the stroke survivor has any memory, visual or perceptual problems, they may not realize the stove is on or forget to turn it off when they are done cooking. Balance or depth perception problems may also result in the person falling onto a lit burner or touching the sides of a hot oven.

#### *Encourage your family member to:*

- Use an alternate mode of cooking, such as the microwave. Frozen meals may be purchased or family members can prepare and freeze individual portions of meals for the person to warm in the microwave.
- Restrict meal preparation to making sandwiches or salads.
- If the person can use the stove, encourage them to slide heavy pots across surfaces instead of carrying them.
- Make sure to keep pot handles over the stove top and not over the side of the stove where they can be knocked over and scald someone.

#### *Tips for Fire Safety and Preventing Burns*

- Keep smoke alarms in working order and a fire extinguisher accessible.
- Plan escape routes in the event of fire and review general fire safety tips (such as not using water to extinguish electrical or grease fires).
- Keep potholders and dishtowels away from stove burners and pilot lights.
- Reinforce the habit of checking water temperature before doing dishes or bathing.
- Avoid or supervise the use of electrical appliances around water.
- Use irons, electric blankets, and heating pads that feature an automatic shut-off.
- Make sure plugs are grounded, repair frayed cords and decrease the number of plugs per socket.
- Restrict smoking to times when supervision is available.

### Food and Poisoning

#### *To avoid food or toxic poisoning, do the following:*

- Inspect food expiration dates and discard foods, cleaning agents and medications of questionable shelf life.
- Label and date all food stored in the freezer.
- Help your family member read and follow directions on product labels.
- Avoid combining cleaning agents that could create unknown chemical reactions.
- Help your family member remember general food preparation procedures such as cleaning work surfaces and washing hands before handling food.

### Handling Emergency Situations and Crime

People who live alone or with minimal supervision need to know how to ask others for help in an emergency and to avoid becoming a victim of crime. Emergency and general safety management skills include:

- Being able to use a phone or medical alert system (Lifeline). Help your family member learn to use an adapted phone with pictures/symbols for emergencies, large push-button numbers or speed dialing, as necessary.
- Being able to use door chains, door peepholes, dead bolts or security systems.
- Remember to:
  - lock windows and doors before leaving the house
  - check identification of people requesting entrance to read meters or make repairs
  - say 'I'm not interested' or 'mail me the information' to telemarketers or door-to-door salespeople



## Transitions from Hospital to Home

Once the stroke survivor leaves the hospital, you may have more questions after they return home or go to a rehabilitation facility as a result of their disability. This section contains additional resources that may help you in your new role as a caregiver or care partner. Your role is crucial for the stroke survivor to have the best outcomes possible and help them achieve their maximum recovery.

Caregiver fatigue is associated with poor outcomes both for the caregiver and the stroke survivor. Knowing your own limits and being able to receive help and advice will promote or enhance a healthy relationship with the stroke survivor after they leave the hospital.



### Appointments

Follow up with all of their appointments as they are important for their continued recovery.

### Medications

It is likely the stroke survivor was started on new medications (such as blood thinners or cholesterol reducing agents) while in the hospital. These medications can help prevent another stroke and other complications (heart attack) so it's important for them to take as prescribed. Do not stop medications without a discussion with their doctor. If you have any concerns with the medication side effects, please discuss with their doctor.

### Post-Stroke Depression

Because of damage in the brain, many stroke survivors may develop post-stroke depression, see pages 25-27. Let the Depression Screening Questionnaire on page 27 guide you in seeking help from their doctor if you have concerns. Post-stroke depression can be devastating and often goes undetected. It can be treated if you know the signs and seek medical help for treatment.

### Rehabilitation

It is important that stroke survivors work on their therapy and rehabilitation every day. The exercises given by their therapists should be done at home. Although they would have been taught to compensate for lost function as a result of the stroke, they may be able to recover function in affected areas by hard work and effort. It may not come easily, but recovery may be possible even years after the stroke.

The stroke survivor's rehabilitation doctor will recommend specific therapies. There are also options during outpatient rehabilitation for survivors returning to driving and returning back to work. While they are in the hospital, attend their therapy sessions to learn how to be better prepared for when they are discharged.

### Risk Factors

Review pages 6-11 for information about stroke risk factors and discuss plans with their doctor to get started making lifestyle modifications.

Consider attending an educational class, you both may want to consider to help make healthy lifestyle changes. Some are free, low-cost or may be covered by insurance. Please go to [TrinityHealthMichigan.org/classes](https://www.TrinityHealthMichigan.org/classes) and search all the classes that are available.

# Transitions for the Caregiver

## Caring for Yourself

Caring for yourself is the best way you can help care for the stroke survivor. Make sure you take your medications and attend your own appointments. Try to carve out time for yourself each day so you can rest, eat right and get regular sleep. If you start feeling overwhelmed and/or emotional (angry, tearful, depressed) or having difficulty coping with the changes associated with being the caregiver, talk with someone. Respite care and family counseling services may also be helpful. Check out the community resources on page 46. Speak with the stroke survivor's social worker or case manager for help.

## Support After a Stroke

Things may be different for you now in a caregiver role. Sometimes it is difficult to return to routines you found valuable and enjoyable. If you feel overwhelmed, that others don't understand what you are going through or if you want to find ways to do things you enjoyed before, but simply don't know where to start, contact one of our stroke survivor and caregiver support groups, see page 46. Other support groups can be found on the American and National Stroke Association websites.

## Create a Care Binder

You may want to put all of the stroke survivor's information in one place.

### *A care binder should include:*

- Emergency numbers, including 911, caregivers, family members, friends, neighbors and "in case of emergency" people. List the numbers in the order you want them called.
- List of medications/medical information, including allergies, blood type and details for administering medications.
- Medical history, including diseases, surgeries, previous strokes and any other important information.
- Contact information for health care professionals, including therapists, home health care agencies and the pharmacy.
- Copies of the stroke survivor's driver's license, social security and health insurance cards are beneficial when going to the hospital.
- Copies of Do Not Resuscitate (DNR) or other state-related forms for the stroke survivor. Have a copy in your car and on the fridge.
- Copy of the Advance Directive: medical/financial power of attorney (MPOA or FPOA).
- Daily routine instructions, including meal times, medication times and activities.



## Important Calls to Make After a Stroke

- Contact other family members
- Survivor's primary health care provider
- Stroke survivor's employer and your employer
- Neighbor or friend to make arrangements for children/pets
- Insurance and bill companies (credit card, utilities, mortgage)

## Glossary of Terms

### **Aphasia** (ah-FA-zeeah)

A total or partial loss of the ability to use words. Problems can range from trouble finding the correct words to being unable to speak at all. May also have problems understanding other people's speech, reading or writing.

### **Apraxia**

An inability to plan and perform learned or purposeful movement, not due to loss of motor power or coordination. The person knows what he wants to do but is unable to perform the movements.

### **Contracture**

Loss of flexibility (range of motion) in a joint. Muscles and connective tissue surrounding joints become shortened and tightened.

### **Dysarthria** (Dys-AR-three-ah)

Difficulty speaking due to weakness or paralysis of the muscles of speech in the face, neck or throat. Drooling from one side of the mouth; slow, labored or slurred speech, or a poor sounding voice may result.

### **Dysphagia** (DIS-fage-uh)

Difficulty in swallowing or inability to swallow. People with dysphagia often cough, choke or aspirate (swallow food or liquids into the airway or windpipe) while they eat or shortly afterwards. May require an adjustment in the types of foods or beverages that can be consumed.

### **Embolus**

A moving blood clot that can become lodged within a blood vessel.

### **Flaccidity**

Lack of muscle tone resulting in inability to move an arm or leg.

### **Hemianopia** (hem-e-an-OP'pe-ah)

Partial blindness affecting half the field of vision in both eyes.

### **Hemiparesis**

Weakness of movement on one side of the body; involving arm, leg, trunk and/or face.

### **Hemiplegia** (hem-e-PLÉ-jee-ah)

Paralysis of movement on one side of the body; involving arm, leg, trunk, and/or face.

### **Lability**

Emotional instability with uncontrolled expression of emotions.

### **Neglect**

Loss of recognition of one side of body or any objects in involved field of view.

### **Spasticity**

Involuntary reflex contraction of muscles, causing rigidity of a normally movable body part.

### **Subluxation**

Incomplete or partial dislocation of the shoulder.

## Support Groups and Community Resources

### Support Groups

Having the support you need is an important part of recovery after a stroke. Our support groups welcome caregivers, survivors, family members and friends. They provide friendship, support and education while offering a fun, lighthearted atmosphere. For more information, visit [TrinityHealthMichigan.org/classes](http://TrinityHealthMichigan.org/classes).

### Online Resources

- **Wikipedia:** [en.wikipedia.org/wiki/Neuroplasticity](http://en.wikipedia.org/wiki/Neuroplasticity)
- **A to Z of Brain, Mind and Learning:** [learninginfo.org/neuroplasticity.htm](http://learninginfo.org/neuroplasticity.htm)
- **Lumosity:** [lumosity.com](http://lumosity.com)

### Community Resources

**Catholic Social Services of Washtenaw County (CSSW)**  
734-712-7774 | [csswashtenaw.org/seniors](http://csswashtenaw.org/seniors)

Provides multiple resources for counseling, legal services, meals, housing, transportation and much more in Washtenaw County.

**American Stroke/Heart Association** | [stroke.org](http://stroke.org)

American Stroke Association's free resources available online for stroke survivors and their caregivers.

*Download reference guides on the following topics:*

- Hope: A Stroke Recovery Guide
- Careliving: Caring for the Stroke Survivor and Yourself

**Stroke Connection e-Newsletter**

Free subscription available if you register online. Go to [stroke.org/en/stroke-connection](http://stroke.org/en/stroke-connection) and sign up for the monthly e-newsletter.

**WarmLine** | **888-4-STROKE** (888-478-7653)

The WarmLine is staffed by a team who answer calls from stroke survivors and their families, providing support and helpful information or just a listening ear. Beyond having special training, the WarmLine team members have some particularly special experience: either they are stroke survivors themselves or have a family member who is.

## Questions or Concerns

Patient Relations is here to help resolve concerns, answer questions or forward suggestions and complaints. Your health care will not be negatively affected if you voice a concern. Talk with your caregiver, unit manager, charge nurse or contact us at the following locations:

- **Ann Arbor, Chelsea, Livingston**  
734-712-2700
- **Livonia**  
734-655-2273
- **Oakland**  
248-858-3535

### YOU MAY ALSO CONTACT:

#### **Michigan Department of Licensing & Regulatory Affairs**

Bureau of Community and Health Systems - Health Facilities Complaints  
Complaint Investigation Unit  
P.O. Box 30664, Lansing, MI 48909  
**Phone:** 800-882-6006  
**Fax:** 517-335-7167  
**Email:** BCHS-Complaints@michigan.gov

#### **The Joint Commission**

Office of Quality and Patient Safety  
One Renaissance Blvd.  
Oakbrook Terrace, IL 60181  
**Phone:** 800-994-6610  
**Fax:** 630-792-5636  
**Website:** jointcommission.org,  
then click *“Report a Safety Event.”*

#### **U.S. Department of Health and Human Services**

200 Independence Avenue SW  
Room 509F, HHH Building  
Washington, DC 20201  
800-368-1019  
**TDD:** 800-537-7697  
**Complaint forms:**  
[hhs.gov/ocr/office/file/index.html](https://hhs.gov/ocr/office/file/index.html)

### MEDICARE PATIENTS MAY CONTACT:

#### **Livanta LLC**

BFCC-QIO  
10820 Guilford Road, Suite 202  
Annapolis MD, 20701-1105  
**Helpline:** 888-524-9900  
**TTY:** 888-985-8775

## Notes

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**Chelsea Hospital**

775 South Main Street, Chelsea, MI 48118

**Trinity Health Ann Arbor**

5301 McAuley Drive, Ypsilanti, MI 48197

**Trinity Health Livingston**

620 Byron Road, Howell, MI 48843

**Trinity Health Livonia**

36475 Five Mile Road, Livonia, MI 48154

**Trinity Health Oakland**

44405 Woodward Avenue, Pontiac, MI 48341



**TrinityHealthMichigan.org**